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EXAMINER	
MAI, KEVIN S	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/774,028	FAN ET AL.	
	Examiner	Art Unit	
	KEVIN S. MAI	2456	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 November 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action has been issued in response to Applicant's Request for Continued Examination filed November 30, 2010.

2. Claims 1, 15, 21, 26 and 28 have been amended. Claims 1-32 are pending in the application.

Continued Examination Under 37 CFR 1.114

3. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 30, 2010 has been entered.

Response to Arguments

4. Applicant's arguments filed November 30, 2010 have been fully considered but they are not persuasive. Applicant argues in view of the amendments the Office Action does not present a prima facie case of obviousness. Examiner disagrees for the rationale provided in the rejection below.

5. Examiner notes that applicant is trying to expedite prosecution and is encouraged to contact examiner to conduct an interview.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 21, 26 and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Claim 21 recites "the third set comprising one or more network interface cards that are not capable of providing an offload path" however the amended subject matter then adds "wherein the third set of network interface cards concurrently participates in a team with the second set of network interface cards for a first type of traffic and in an offload system for a second type of traffic that bypasses the intermediate driver". Thus there appears to be an error since the third set is both not capable of providing an offload path and is in an offload system.

9. Claims 26 and 28 recite three paths, however examiner was only aware of two paths as the upload path and the team path appear to be the same path. Additionally claim 26 recites the upload path being used for an off load system when it also recites the off load path..

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. The factual inquiries set forth in Graham **v.** John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claims 1, 3, 5-9, 12-25 and 28-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pub. No. 2004/0054813 to Boucher et al. (hereinafter "Boucher") and further in view of US Pat. No. 6687758 to Craft et al. (hereinafter "Craft") and further in view of US Pat. No. 6963932 to Bhat (hereinafter "Bhat").

13. **As to Claim 1,** Boucher discloses **a system for communications, comprising:**

a transport layer/network layer processing stack (Figure 31 of Boucher discloses a Microsoft TCP/IP Driver)**; and**

[an intermediate driver] coupled to the transport layer/network layer processing stack via a first miniport and a second miniport (Figure 31 of Boucher discloses the Microsoft TCP/IP driver being connected to a 3COM miniport driver and an INIC miniport driver),

a first network interface card coupled to the [intermediate driver] (Paragraph [0478] of Boucher discloses the TCP IP driver will be bound to INIC devices as well as other types of NICs)**; and**

a second network interface card coupled to the [intermediate driver] (Paragraph [0478] of Boucher discloses the TCP IP driver will be bound to INIC devices as well as other types of NICs)

[wherein the second network interface card concurrently participates in a team with the first network interface card for a first type of traffic] and in a system that offloads traffic for a second type of traffic that bypasses the intermediate driver (Paragraph [0157] of Boucher discloses offloading to a cost-effective intelligent network interface card (INIC)),

[wherein, if a third network interface card coupled to the intermediate driver fails, then the first network interface card and the second network interface card handle a load previously supported by the failed third network interface card],

[wherein the first miniport supports teaming over the first network interface card and the second network interface card], and

wherein the second miniport provides a dedicated upload path for the second network interface card of a system that can offload traffic from the transport layer/network layer processing stack (Paragraph [0157] of Boucher discloses offloading to a cost-effective intelligent network interface card (INIC), accordingly it is seen that the INIC miniport driver would support offloading)

wherein the second network interface card uses the second miniport for first traffic uploaded from the system that can offload traffic from the transport layer/network layer processing stack (Paragraph [0478] of Boucher discloses the TCP IP driver will be bound to INIC devices as well as other types of NICs. Paragraph [0157] of Boucher discloses offloading to a cost-effective intelligent network interface card (INIC). Figure 31 discloses a miniport

driver able to send traffic to another stack) **and [uses the first miniport for second traffic related to the teaming with the first network interface card], and [wherein the first network interface card uses the first miniport for third traffic related to the teaming].**

Boucher does not explicitly disclose an **intermediate driver** being coupled.

However, Bhat discloses this. Column 3 lines 1-20 of Bhat discloses an NDIS intermediate driver being connected to the transport protocol via multiple miniport instances.

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the INIC system as disclosed by Boucher, with connecting the intermediate driver via multiple miniport instances as disclosed by Boucher. One of ordinary skill in the art would have been motivated to combine to apply a known technique to a known device. It is seen in paragraph [0479] of Boucher that the system can utilize an NDIS and as such it would be obvious to apply the techniques of Bhat on this NDIS.

Boucher does not explicitly disclose **wherein the second network interface card concurrently participates in a team with the first network interface card for a first type of traffic** and **wherein the first miniport supports teaming over the first network interface card and the second network interface card** and **uses the first miniport for second traffic related to the teaming with the first network interface card** and **wherein the first network interface card uses the first miniport for third traffic related to the teaming** and **wherein, if a third network interface card coupled to the intermediate driver fails, then the first network interface card and the second network interface card handle a load previously supported by the failed third network interface card.**

However, Craft discloses this. Figure 1 of Craft discloses using a port aggregation driver between the INIC device driver and the stack. Column 5 lines 53 – 54 of Craft discloses that port aggregation and fail-over switching mechanisms are provided across multiple INICs

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the INIC system as disclosed by Boucher, with supporting teaming as disclosed by Craft. One of ordinary skill in the art would have been motivated to combine because Boucher claims the benefit of Craft in paragraph [0003] of Boucher.

14. **As to Claim 3,** Boucher-Bhat-Craft discloses **the system according to claim 1, wherein the first network interface card comprises a plurality of network interface cards** (Paragraph [0478] of Boucher discloses the TCP IP driver will be bound to INIC devices as well as other types of NICs)**.**

15. **As to Claim 5,** Boucher-Bhat-Craft discloses **the system according to claim 1, wherein the second network interface card is the only network interface card that supports traffic from the system that can offload traffic from the transport layer/network layer processing stack** (Paragraph [0157] of Boucher discloses offloading to a cost-effective intelligent network interface card (INIC). Paragraph [0478] of Boucher discloses the TCP IP driver will be bound to INIC devices as well as other types of NICs. Accordingly it is seen that only the INIC supports offloading)**.**

16. **As to Claim 6,** Boucher-Bhat-Craft discloses **the system according to claim 1, wherein the transport layer/network layer processing stack comprises a transmission control protocol/internet protocol (TCP/IP) stack** (Paragraph [0478] of Boucher discloses the TCP IP driver will be bound to INIC devices as well as other types of NICs)**.**

17. **As to Claim 7,** Boucher-Bhat-Craft discloses **the system according to claim 1, wherein the first miniport comprises a virtual miniport instance** (Column 3 lines 15-25 of Bhat disclose a miniport instance is created by a miniport driver and accordingly it is seen that each miniport instance is a virtual instance)**.**

Examiner recites the same rationale to combine used in claim 1.

18. **As to Claim 8,** Boucher-Bhat-Craft discloses **the system according to claim 7, wherein the virtual miniport instance comprises a virtual miniport instance adapted for teamed traffic** (Figure 1 of Craft discloses using a port aggregation driver between the INIC device driver and the stack)

Examiner recites the same rationale to combine used in claim 1.

19. **As to Claim 9,** Boucher-Bhat-Craft discloses **the system according to claim 1, wherein the second miniport comprises a virtual miniport instance** (Column 3 lines 15-25 of Bhat disclose a miniport instance is created by a miniport driver and accordingly it is seen that each miniport instance is a virtual instance)**.**

Examiner recites the same rationale to combine used in claim 1.

20. **As to Claim 12,** Boucher-Bhat-Craft discloses **the system according to claim 1, wherein the second miniport supports traffic that is processed by the transport layer/network layer processing stack** (Figure 31 of Boucher discloses the Microsoft TCP/IP driver being connected to a 3COM miniport driver and an INIC miniport driver. Accordingly it is seen that the INIC miniport driver would support the traffic).

21. **As to Claim 13,** Boucher-Bhat-Craft discloses **the system according to claim 1, wherein the second miniport supports traffic that has not been offloaded by the system that can offload traffic from the transport layer/network layer processing stack** (Paragraph [0178] of Boucher discloses the INIC being able to operate on both fast-path and slow-path traffic).

22. **As to Claim 14,** Boucher-Bhat-Craft discloses **the system according to the claim 1, wherein traffic that has been offloaded by the system that can offload traffic from the transport layer/network layer processing stack bypasses the transport layer/network layer processing stack and the intermediate driver** (Abstract of Boucher discloses the INIC provides a fast-path that avoids protocol processing. Paragraph [0065]).

23. **As to Claim 15,** Boucher-Bhat-Craft discloses **the system according to claim 1, wherein the intermediate driver supports teaming through a first path to the transport layer/network layer processing stack and uploading through a second path to the transport**

layer/network layer processing stack, the second path being a non-offload path (Figure 1 of Craft discloses using a port aggregation driver between the INIC device driver and the stack. Figure 10 of Boucher discloses there being two paths).

Examiner recites the same rationale to combine used in claim 1.

24. **As to Claim 16,** Boucher-Bhat-Craft discloses **the system according to claim 1, wherein the intermediate driver comprises a network driver interface specification (NDIS) intermediate driver** (Paragraph [0479] of Boucher that the system can utilize an NDIS).

25. **As to Claim 17,** Boucher-Bhat-Craft discloses **the system according to claim 1, wherein the intermediate driver is aware of the system that can offload traffic from the transport protocol/network protocol processing stack** (Column 5 lines 1 – 10 of Craft discloses that since the fast-path conditions described involve offloading control and processing of a connection to either of the INICs in association with the ports the fast-path and port aggregation protocol need to be synchronized).

Examiner recites the same rationale to combine used in claim 1.

26. **As to Claim 18,** Boucher-Bhat-Craft discloses **the system according to claim 1, wherein teaming supports load balancing** (Column 6 lines 35 – 37 of Craft discloses that the port aggregation switch may change the port selection for load balancing purposes).

Examiner recites the same rationale to combine used in claim 1.

27. **As to Claim 19,** Boucher-Bhat-Craft discloses **the system according to claim 1, wherein teaming supports fail over** (Column 5 lines 53 – 54 of Craft discloses that port aggregation and fail-over switching mechanisms are provided across multiple INICs).

Examiner recites the same rationale to combine used in claim 1.

28. **As to Claim 20,** Boucher-Bhat-Craft discloses **the system according to claim 1, wherein teaming supports virtual network capabilities** (Column 3 lines 1-25 of Bhat discloses the system supporting virtual LANs and virtual network interface cards).

Examiner recites the same rationale to combine used in claim 1.

29. **As to Claim 21,** Boucher discloses **a system for communications, comprising:**
a first set of network interface cards comprising a second set and a third set of network interface cards, the second set comprising a network interface card that is capable of offloading one or more connections, the third set comprising one or more network interface cards that are not capable of providing an offload path (Paragraph [0478] of Boucher discloses the TCP IP driver will be bound to INIC devices as well as other types of NICs. Paragraph [0157] of Boucher discloses offloading to a cost-effective intelligent network interface card (INIC)); **and**
[an intermediate driver coupled to the second set and to the third set, the intermediate driver being part of a host computer and supporting teaming over the second set and the third set],

[a host protocol processing stack coupled to the intermediate driver via a first virtual miniport instance and a second virtual miniport instance],

[wherein the third set of network interface cards concurrently participates in a team with the second set of network interface cards for a first type of traffic] and in an offload system for a second type of traffic that bypasses the intermediate driver (Paragraph [0157] of Boucher discloses offloading to a cost-effective intelligent network interface card (INIC)),

[wherein, if a particular network interface card in a fourth set of network interface cards coupled to the intermediate driver fails, then a plurality of network interface cards from the first set handle a load previously supported by the failed network interface card of the fourth set],

[wherein the teamed traffic of the second set and the third set passes through the first virtual miniport instance], and

wherein uploaded traffic from an offload system passes through only the second virtual miniport instance that is dedicated to the third set (Paragraph [0478] of Boucher discloses the TCP IP driver will be bound to INIC devices as well as other types of NICs. Paragraph [0157] of Boucher discloses offloading to a cost-effective intelligent network interface card (INIC)) **and [wherein the intermediate driver provides load balancing over some or all of the first set].**

Boucher does not explicitly disclose **wherein the third set of network interface cards concurrently participates in a team with the second set of network interface cards for a first type of traffic** and **an intermediate driver coupled to the second set and to the third set, the intermediate driver being part of a host computer and supporting teaming over the second set and the third set** or **wherein the teamed traffic of the second set and the third set**

passes through the first virtual miniport instance or **wherein the intermediate driver provides load balancing over some or all of the first set** and **wherein, if a particular network interface card in a fourth set of network interface cards coupled to the intermediate driver fails, then a plurality of network interface cards from the first set handle a load previously supported by the failed network interface card of the fourth set**

However, Craft discloses this. Figure 1 of Craft discloses using a port aggregation driver between the INIC device driver and the stack. Column 6 lines 35 – 37 of Craft discloses that the port aggregation switch may change the port selection for load balancing purposes. Column 5 lines 53 – 54 of Craft discloses that port aggregation and fail-over switching mechanisms are provided across multiple INICs

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the INIC system as disclosed by Boucher, with supporting teaming as disclosed by Craft. One of ordinary skill in the art would have been motivated to combine because Boucher claims the benefit of Craft in paragraph [0003] of Boucher.

Boucher does not explicitly disclose **a host protocol processing stack coupled to the intermediate driver via a first virtual miniport instance and a second virtual miniport instance**

However, Bhat discloses this. Column 3 lines 1-20 of Bhat discloses an NDIS intermediate driver being connected to the transport protocol via multiple miniport instances. Column 3 lines 15-25 of Bhat disclose a miniport instance is created by a miniport driver and accordingly it is seen that each miniport instance is a virtual instance.

Examiner recites the same rationale to combined use in claim 1.

30. **As to Claim 22,** Boucher-Craft-Bhat discloses **the system according to claim 21, wherein the second set provides a kernel bypass path and wherein the third set does not provide a kernel bypass path** (Paragraph [0178] of Boucher discloses the INIC being able to operate on both fast-path and slow-path traffic. Paragraph [0157] of Boucher discloses offloading to a cost-effective intelligent network interface card (INIC)).

31. **As to Claim 23,** Boucher-Craft-Bhat discloses **the system according to claim 21, wherein the second set is associated with a system that is capable of offloading one or more connections** (Paragraph [0157] of Boucher discloses offloading to a cost-effective intelligent network interface card (INIC)),
wherein the system that is capable of offloading one or more connections offloads a particular connection (Paragraph [0157] of Boucher discloses offloading to a cost-effective intelligent network interface card (INIC)), **and**
wherein packets carried by the particular offloaded connection bypass the intermediate driver (Abstract of Boucher discloses the INIC provides a fast-path that avoids protocol processing. Paragraph [0065]).

32. **As to Claim 24,** Boucher-Craft-Bhat discloses **the system according to claim 21, wherein intermediate driver provides fail over procedures** (Column 5 lines 53 – 54 of Craft discloses that port aggregation and fail-over switching mechanisms are provided across multiple INICs).

Examiner recites the same rationale to combine used in claim 1.

33. **As to Claim 25,** Boucher-Craft-Bhat discloses **the system according to claim 21, wherein the host computer communicates, via a team of network interface cards form the second set and the third set , with a remote peer over a network** (Figure 3 of Boucher discloses receiving a packet from the network)

34. **As to Claim 28,** Boucher discloses **a method for communicating, comprising: [teaming] a plurality of network interface cards of a host computer, the plurality of network interface cards not providing an offload path that bypasses a kernel of the host computer** (Paragraph [0478] of Boucher discloses the TCP IP driver will be bound to INIC devices as well as other types of NICs. Paragraph [0157] of Boucher discloses offloading to a cost-effective intelligent network interface card (INIC))**;**
adding a first additional network interface card to the host computer, the first additional network interface card concurrently supporting at least three paths including an offload path, an upload path and [a team path], the offload path of an off load system bypassing the kernel of the host computer (Paragraph [0478] of Boucher discloses the TCP IP driver will be bound to INIC devices as well as other types of NICs. Paragraph [0157] of Boucher discloses offloading to a cost-effective intelligent network interface card (INIC)) **the upload path of the offload system passing through the kernel of the host computer** (Figure 6 of Boucher discloses the slow path)**, the offload system being used for a first type of traffic, the team path being used for a second type of traffic, the upload path passing through a first**

miniport that is dedicated to uploaded traffic and the first additional network interface card (Paragraph [0478] of Boucher discloses the TCP IP driver will be bound to INIC devices as well as other types of NICs. Figure 31 shows that the TCP/IP driver is connected via miniport drivers and accordingly would receive traffic from the NICs via the miniports), **[the first miniport being communicatively disposed between an intermediate driver and the host TCP/IP processing stack]**

[teaming the plurality of network interface cards and the first additional network interface card, the teamed traffic passing through [a second miniport communicatively disposed between the intermediate driver and the host TCP/IP processing stack], wherein the first additional network interface card concurrently supports [teaming], offloading and uploading (Paragraph [0478] of Boucher discloses the TCP IP driver will be bound to INIC devices as well as other types of NICs. Paragraph [0157] of Boucher discloses offloading to a cost-effective intelligent network interface card (INIC))**;**

[providing, by the intermediate driver load balancing over the plurality of network interface cards and the additional network interface card], [the intermediate driver being communicatively disposed between (1) the host TCP/IP processing stack and (2) the plurality of networking interface cards and the additional network interface card]

[wherein the intermediate driver concurrently supports teaming through the team path to the host TCP/IP processing stack] and uploading through the upload path to the host TCP/IP processing stack (Paragraph [0478] of Boucher discloses the TCP IP driver will be bound to INIC devices as well as other types of NICs. Paragraph [0157] of Boucher discloses offloading to a cost-effective intelligent network interface card (INIC))**; and**

[adding a second additional network interface card to the host computer, wherein, if the second network interface card fails, then at least two network interface cards of the first additional network interface card and/or the plurality of network interface cards handle a load previously supported by the failed second additional network interface card].

Boucher does not explicitly disclose **teaming** and **a team path** and **teaming the plurality of network interface cards the teamed traffic passing through … and the additional network interface card** and **providing, by the intermediate driver load balancing over the plurality of network interface cards and the additional network interface card** and **wherein the intermediate driver concurrently supports teaming through the team path to the host TCP/IP processing stack** and **adding a second additional network interface card to the host computer, wherein, if the second network interface card fails, then at least two network interface cards of the first additional network interface card and/or the plurality of network interface cards handle a load previously supported by the failed second additional network interface card**

However, Craft discloses this. Figure 1 of Craft discloses using a port aggregation driver between the INIC device driver and the stack. Column 6 lines 35 – 37 of Craft discloses that the port aggregation switch may change the port selection for load balancing purposes. Wherein port aggregation is layer 2 load balancing since it affects the NICs and accordingly their corresponding drivers. Column 5 lines 53 – 54 of Craft discloses that port aggregation and fail-over switching mechanisms are provided across multiple INICs

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the INIC system as disclosed by Boucher, with supporting teaming as disclosed by

Craft. One of ordinary skill in the art would have been motivated to combine because Boucher claims the benefit of Craft in paragraph [0003] of Boucher.

Boucher does not explicitly disclose **the first miniport being communicatively disposed between an intermediate driver and the host TCP/IP processing stack** or **a second miniport communicatively disposed between the intermediate driver and the host TCP/IP processing stack** or **the intermediate driver being communicatively disposed between (1) the host TCP/IP processing stack and (2) the plurality of networking interface cards and the additional network interface card**

However, Bhat discloses this. Column 3 lines 1-20 of Bhat discloses an NDIS intermediate driver being connected to the transport protocol via multiple miniport instances. Figure 2 discloses the intermediate driver being disposed between the VLANs and the VNICs.

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the INIC system as disclosed by Boucher, with connecting the intermediate driver via multiple miniport instances as disclosed by Boucher. One of ordinary skill in the art would have been motivated to combine to apply a known technique to a known device. It is seen in paragraph [0479] of Boucher that the system can utilize an NDIS and as such it would be obvious to apply the techniques of Bhat on this NDIS.

35. **As to Claim 29,** Boucher-Craft-Bhat discloses **the method according to claim 28, further comprising: handling packets of a particular connection only via the additional network interface card, the particular connection being maintained by the off load system that is capable of offloading traffic from the host TCP/IP processing stack** (Paragraph

[0157] of Boucher discloses offloading to a cost-effective intelligent network interface card (INIC). Paragraph [0478] of Boucher discloses the TCP IP driver will be bound to INIC devices as well as other types of NICs. Accordingly it is seen that only the INIC supports offloading).

36. **As to Claim 30,** Boucher-Craft-Bhat discloses **the method according to claim 28, wherein the intermediate driver provides fail over procedures** (Column 5 lines 53 – 54 of Craft discloses that port aggregation and fail-over switching mechanisms are provided across multiple INICs).

Examiner recites the same rationale to combine used in claim 28.

37. **As to Claim 31,** Boucher-Craft-Bhat discloses **the method according to claim 28, further comprising: processing packets of a particular connection via the host TCP/IP processing stack, the particular connection not being an offloaded connection although being maintained by the offload system that is capable of offloading traffic from the host protocol stack** (Paragraphs [0267]-[0269] of Boucher discloses the ATCP stack being able to perform slow path processing).

38. **As to Claim 32,** Boucher-Craft-Bhat discloses **the method according to claim 31, further comprising: transmitting the processed packets only through the additional network interface card** (Paragraph [0478] of Boucher discloses the ATCP driver will be bound exclusively to INIC devices).

39. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boucher-Bhat-Craft and further in view of US Pat. No. 6308282 to Huang et al. (hereinafter "Huang").

40. **As to Claim 2,** Boucher-Bhat-Craft discloses **the system according to claim 1.** Boucher-Bhat-Craft does not explicitly disclose **wherein a first NDIS Miniport is communicatively disposed between the intermediate driver and the first interface card, and wherein a second NDIS miniport is communicatively disposed between the intermediate driver and the second network interface card, and wherein a virtual bus driver is communicatively disposed between the second NDIS miniport and the second network interface card.**

However, Huang discloses this. Figure 4 of Huang discloses multiple miniport's being associated with multiple NICs.

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the system of claim 1 as disclosed by Boucher-Bhat-Craft, with the miniport structure as disclosed by Huang. One of ordinary skill in the art would have been motivated to combine to implement a known technique to a known device.

41. Claims 4, 10, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boucher-Bhat-Craft and further in view of US Pat. No. 7376755 to Pandya (hereinafter "Pandya").

42. **As to Claim 4,** Boucher-Bhat-Craft discloses **the system according to claim 1.** Boucher-Bhat-Craft does not explicitly disclose **wherein the second network interface card comprises a remote-direct-memory-access-enabled (RDMA-enabled) network interface card.**

However, Pandya discloses this. Column 11 lines 20-25 of Pandya disclose once both peers of the communication are ready to use the RDMA mechanism, the data transfer from RDMA regions can happen with essentially zero copy overhead from the source to the destination without substantial host intervention if NIC/HBA hardware in the peers implement RDMA capability

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the INIC system as disclosed by Boucher, with having NICs implement RDMA capabilities as disclosed by Pandya. One of ordinary skill in the art would have been motivated to combine such that data transfer from RDMA regions can happen with essentially zero copy overhead form the source to the destination without substantial host intervention (Column 11 lines 20-25 of Pandya).

43. **As to Claim 10,** Boucher-Bhat-Craft discloses **the system according to claim 9.** Boucher-Bhat-Craft does not explicitly disclose **wherein the virtual miniport instance comprises an RDMA-enabled virtual miniport instance.**

However, Pandya discloses this. Column 11 lines 20-25 of Pandya disclose once both peers of the communication are ready to use the RDMA mechanism, the data transfer from RDMA regions can happen with essentially zero copy overhead from the source to the

destination without substantial host intervention if NIC/HBA hardware in the peers implement RDMA capability

Examiner recites the same rationale to combine used in claim 4.

44. **As to Claim 26,** Boucher discloses **a method for communicating, comprising: (a) [teaming a plurality] of network interface cards [using an intermediate driver] of a host computer, [the intermediate driver providing load balancing over some or all of the network interface cards and providing fail over procedures], wherein the teaming is only performed by the host computer and/or the plurality of network interface cards, [wherein plurality of network interface cards support remote direct memory access (RDMA) traffic], wherein teamed traffic passes through [a first miniport that is communicatively disposed between a host TCP/IP stack and the intermediate driver]** (Paragraph [0478] of Boucher discloses the TCP IP driver will be bound to INIC devices as well as other types of NICs)**; (b) adapting a first network interface card of the plurality of network interface cards to concurrently support at least three paths to an application layer including an offload path, and upload path and [a team path], the offload path and the upload path being used for an offload system for a first type of traffic, the team path being used for a second type of traffic** (Paragraph [0478] of Boucher discloses the TCP IP driver will be bound to INIC devices as well as other types of NICs. Paragraph [0157] of Boucher discloses offloading to a cost-effective intelligent network interface card (INIC))**, the upload path passing through a second miniport dedicated to the adapted at least one network interface, [the second miniport being communicatively disposed between the host TCP/IP stack and the intermediate**

driver], the offload path bypassing the intermediate driver and the host TCP/IP stack [wherein the intermediate driver concurrently supports teaming through the team path to the host TCP/IP stack] and uploading through the upload path to the host TCP/IP stack (Paragraph [0478] of Boucher discloses the TCP IP driver will be bound to INIC devices as well as other types of NICs. Paragraph [0157] of Boucher discloses offloading to a cost-effective intelligent network interface card (INIC); **and**

(c) adapting remaining network interface cards of the plurality of network interface cards not to provide an offload path, wherein the teamed traffic over the adapted at least one network interface card and the adapted remaining network interface cards passing through the first miniport (Paragraph [0478] of Boucher discloses the TCP IP driver will be bound to INIC devices as well as other types of NICs. Paragraph [0157] of Boucher discloses offloading to a cost-effective intelligent network interface card (INIC))

[(d) if a second network interface card coupled to the intermediate driver fails, then at least two of the plurality of network interface cards handle a load previously supported by the failed second network interface card].

Boucher does not explicitly disclose **teaming** using **an intermediate driver** or **the intermediate driver providing load balancing over some or all of the network interface cards and providing fail over procedures** or **wherein the intermediate driver concurrently supports teaming through the team path to the host TCP/IP stack** or **if a second network interface card coupled to the intermediate driver fails, then at least two of the plurality of network interface cards handle a load previously supported by the failed second network interface card.**

However, Craft discloses this. Figure 1 of Craft discloses using a port aggregation driver between the INIC device driver and the stack. Column 6 lines 35 – 37 of Craft discloses that the port aggregation switch may change the port selection for load balancing purposes. Column 5 lines 53 – 54 of Craft discloses that port aggregation and fail-over switching mechanisms are provided across multiple INICs

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the INIC system as disclosed by Boucher, with supporting teaming as disclosed by Craft. One of ordinary skill in the art would have been motivated to combine because Boucher claims the benefit of Craft in paragraph [0003] of Boucher.

Boucher does not explicitly disclose **wherein plurality of network interface cards support remote direct memory access (RDMA) traffic**

However, Pandya discloses this. Column 11 lines 20-25 of Pandya disclose once both peers of the communication are ready to use the RDMA mechanism, the data transfer from RDMA regions can happen with essentially zero copy overhead from the source to the destination without substantial host intervention if NIC/HBA hardware in the peers implement RDMA capability

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the INIC system as disclosed by Boucher, with having NICs implement RDMA capabilities as disclosed by Pandya. One of ordinary skill in the art would have been motivated to combine such that data transfer from RDMA regions can happen with essentially zero copy overhead form the source to the destination without substantial host intervention (Column 11 lines 20-25 of Pandya).

Boucher does not explicitly disclose **a first miniport that is communicatively disposed between a host TCP/IP stack and the intermediate driver** or **the second miniport being communicatively disposed between the host TCP/IP stack and the intermediate driver**

However, Bhat discloses this. Column 3 lines 1-20 of Bhat discloses an NDIS intermediate driver being connected to the transport protocol via multiple miniport instances. Figure 2 discloses the intermediate driver being disposed between the VLANs and the VNICs.

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the INIC system as disclosed by Boucher, with connecting the intermediate driver via multiple miniport instances as disclosed by Boucher. One of ordinary skill in the art would have been motivated to combine to apply a known technique to a known device. It is seen in paragraph [0479] of Boucher that the system can utilize an NDIS and as such it would be obvious to apply the techniques of Bhat on this NDIS.

45. **As to Claim 27,** Boucher-Craft-Pandya-Bhat disclose **the method according to claim 26, wherein (b) comprises solely associating the offload system that is capable of offloading one or more connections with a single network interface card of the plurality of network interface cards** (Paragraph [0478] of Boucher discloses the ATCP driver will be bound exclusively to INIC devices and the TCP IP driver will be bound to INIC devices as well as other types of NICs. Paragraph [0157] of Boucher discloses offloading to a cost-effective intelligent network interface card (INIC)).

46. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boucher-Bhat-Craft and further in view of "Winsock Direct and Protocol Offload on SANs" to Microsoft. (hereinafter "Microsoft").

47. **As to Claim 11**, Boucher-Bhat-Craft discloses **the system according to claim 1.** Boucher-Bhat-Craft does not explicitly disclose **wherein the system that can offload traffic from the transport layer/network layer processing stack comprises a Winsock Direct system**

However, Microsoft discloses this. Page 2 of Microsoft discloses that Winsock Direct provides offload of the protocol stack**.**

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the system of claim 1 as disclosed by Boucher-Bhat-Craft, with the use of Winsock Direct as disclosed by Microsoft. One of ordinary skill in the art at the time the invention was made would have been motivated to utilize Winsock Direct because (Microsoft page 1) Winsock Direct can increase system performance by freeing up CPU and memory bandwidth resources to be used by the application.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEVIN S. MAI whose telephone number is (571)270-5001. The examiner can normally be reached on Monday - Friday, 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rupal Dharia can be reached on 571-272-3880. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/K. S. M./
Examiner, Art Unit 2456

/Salad Abdullahi/
Primary Examiner, Art Unit 2456